

ABSTRACT

A microelectronic die is aligned with a package substrate and attached to it using solder balls. A specially shaped heat spreader, preferably with a coefficient of thermal expansion (CTE) similar to that of silicon, is attached to the back side of the die using a heat-conducting adhesive. An epoxy-based material is flowed into the gap between the die, the substrate, and the heat spreader via a through-hole in either the substrate or the heat spreader using a dispense process or a transfer molding process. By positioning the heat spreader to abut the die corners and/or edges, the stresses on the die are substantially reduced or eliminated.